$$\frac{\sqrt{2}}{\sqrt{3}}\log\frac{1+\sqrt{3}}{\sqrt{2}}=\frac{1}{\sqrt{2}+}\,\frac{1.2}{2\sqrt{2}+}\,\frac{3.4}{3\sqrt{2}+..}$$

$$\frac{\pi}{2}=\frac{1}{1-}\,\frac{1}{4-}\,\frac{6}{7-}\,\frac{15}{10-}\,\frac{28}{13-...}$$

$$\frac{\pi}{2\sqrt{2}}=\frac{1}{\sqrt{2}-}\,\frac{1.2}{4\sqrt{2}-}\,\frac{3.4}{7\sqrt{2}-}\,\frac{5.6}{10\sqrt{2}-..}$$

For $x=\frac{1}{2}$, $\frac{2}{\sqrt{5}}\log\frac{1+\sqrt{5}}{2}=\frac{1}{2+}\,\frac{1.2}{5+}\,\frac{3.4}{8+}\,\frac{5.6}{11+...}$

$$\frac{\pi}{3\sqrt{3}}=\frac{1}{2-}\,\frac{1.2}{7-}\,\frac{3.4}{12-}\,\frac{5.6}{17-...}$$

For $x=1$ in the expansion of $\frac{\log[x+\sqrt{(1+x^2)}]}{\sqrt{(1+x^2)}}$

$\frac{\log(1+\sqrt{2})}{\sqrt{2}}=\frac{1}{1+}\,\frac{1.2}{1+}\,\frac{3.4}{1+}\,\frac{5.6}{1+...}$, and he compares this with

$$\frac{\pi}{2}-1=\frac{1}{1+}\,\frac{1.2}{1+}\,\frac{2.3}{1+}\,\frac{3.4}{1+}\,\frac{5.6}{1+...}$$

GEOMETRY.

318. Proposed by G. W. GREENWOOD, M. A., Dunbar, Pa.

Is it possible by a straight edge and sect carrier, *i. e.*, without the use of a circle, to construct a mean proportional to two given sects?

Remark by G. B. M. ZERR, A. M., Ph. D., 4243 Girard Avenue, Philadelphia, Pa.

The value of the length of the mean proportional can be approximately measured without the application of the circle, but it cannot be constructed by pure geometry without such application.

318. Proposed by G. B. M. ZERR, A. M., Ph. D., 4243 Girard Avenue, Philadelphia, Pa.

Given three radii and the distances apart of the centers of three circles, to find the radii of the eight circles touching the three given circles.

II. Solution by G. W. GREENWOOD, Dunbar, Pa.

Consider first the problem of describing a circle touching two given circles and passing through a given point. Invert with respect to the point; the circles in general invert into circles; draw any common tangent to them